



**U.S. Army Research Institute
for the Behavioral and Social Sciences**

Research Note 2005-04

**Preparing and Submitting
Scientific and Technical Manuscripts
and Other Documents for Publication**

ARI Publication Policy

June 2005

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This guidance supersedes ARI Regulation 70-3 (October 2003)

Approved for public release; distribution is unlimited.

PREPARING AND SUBMITTING TECHNICAL DOCUMENTS FOR PUBLICATION AND ARCHIVING

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PREPARING AND SUBMITTING TECHNICAL DOCUMENTS FOR PUBLICATION AND ARCHIVING

GENERAL POLICIES AND PROCEDURES:

APPLICABILITY. This guidance applies to ARI and contractor personnel who produce and submit technical documents for publication or archiving by ARI. It is based on the former ARI Regulation 70-3 and incorporates all subsequent supplementary materials, guidance, and procedure and policy changes.

DEFINITIONS. “Technical Documents” includes both ARI-published documents and non-ARI-published journal articles, books, and book chapters by ARI personnel, or by contractor personnel when the research was ARI-funded. ARI-published technical documents receive clearance by the Director or Technical Director, based on the recommendation of the RU/Office Chief, for scientific and technical quality, and for sensitivity of subject matter or findings.

“Publication” refers to the printing and distribution of ARI-published documents, or publication of a journal article, book, or book chapter.

“Archiving” refers to the submittal of ARI-published documents to DTIC

“Authorship” includes both in-house (ARI personnel and former ARI personnel authoring ARI-funded work) and contract (contractor personnel and former contractor personnel authoring publication of ARI-funded work). It also includes, as a special case, ARI personnel authoring publication of non-ARI funded work.

RESPONSIBILITIES. The Director and Technical Director approve technical documents for scientific excellence and potential sensitivity.

The Research Unit and Office Chiefs review reports for technical adequacy (ensuring relevance and responsiveness to the needs of the Army), review sensitive issues, and provide final research unit or office approval of documents to be published and/or archived. When authors are from more than one research unit or office, the research unit or office chief with primary responsibility for the research will be the final approver for technical quality.

The office of Management Support (MS) develops publications policy, procedures, and standards, and provides processing of ARI documents for publication and archiving, including preparation, printing, and distribution. The MS office also manages a technical document tracking system and a data base of recent publications. The ARI Library maintains a database of ARI documents, some of which it has in hard copy or microfiche, and its data base contains links to documents available on line, in whole-text form, from ARI or DTIC.

Authors are responsible for producing printer-ready documents for publication by ARI that conform to research standards prescribed in DoD and U.S. Army regulations, and comply with the style and submission standards of the *Publication Manual of the American Psychological Association*, Fifth Edition (APA Manual) and this guidance. Authors will provide an MS Word file of their document electronically on a 3.5 inch disk or on a Compact Disk-Recordable (CD-R) and will provide an MS Word file for the *Standard Form 298* (SF298).

The Contracting Officer's Representative (COR) ensures that a final contractor report is submitted for filing with the Defense Technical Information Center (DTIC), and ensures that contractor reports conform to the requirements of the APA Manual and this guidance. The COR will ensure that the contractor's report to be submitted for publication is complete and printer-ready and meets the terms of the contract for deliverable documentation prior to formal acceptance of the report as a contract deliverable, and prior to close-out of the contract. The COR will require the contractor to provide an MS Word file of their document on a 3.5 inch computer disk, or CD-R, and to provide an MS Word file for the *Standard Form 298* (SF298).

Early in the development of an ARI-published book or special report, the responsible research unit or office will coordinate with the MS office for preplanning of editorial and graphics support requirements, printing schedules, distribution, and funding. (See Attachment H for typical lead times for various types of document.)

STYLE. Each document, whether developed in-house or by contract, must conform to research standards prescribed in DoD and U.S. Army regulations (except Contractor Reports – see below), and to style and submission guidance provided here. It is the author's responsibility to write reports that conform to the style standards of the APA Manual, with the exceptions noted in Attachment B. If a question of style is not covered by the APA Manual or this guidance, the most recent United States Government Printing Office *Style Manual*, and the *Chicago Manual of Style* will be followed, in that order.

COPYRIGHT AND TECHNICAL DATA RIGHTS. Copyrighted illustrations, chapters, or documents to be incorporated into an ARI publication must be accompanied by written consent from the copyright owner. On the first page of the copyrighted material, a statement identifying the copyright owner must be shown. A document containing information with limited rights (as in a process developed at private expense) must be marked with the appropriate DoD distribution statement (Attachment C).

REVIEWS. Peer, sensitivity, and security reviews are the responsibility of the research unit or office chief and are to be completed before submission of a document for publication, or of a book, book chapter, or journal article for archiving. The research unit or office chief is the final approver of technical documents for technical quality. Any unresolved quality issues should be settled among the RU/O chief and the authors (or, among the RU/O chief, contract authors, and the COR). When authors are from more than one RU/O, the RU/O chief with primary responsibility for the research will be the final approver for technical quality.

Peer Reviews. Prior to publication, documents to be published by ARI, to include printing and distribution, require two reviews by peers or subject matter experts. Research Notes and

Study Notes, which are only archived at DTIC, require only one review by a peer or subject matter expert. Review of Contractor Reports by the COR constitutes a “peer review”, and a separate peer review form is not required as part of the submission package.

An ARI Form 185-R (April 01) will be completed for each peer review (except Contractor Reports). For documents requiring two reviews, where the first author is in-house, one reviewer must be someone outside the research unit or office of origination. **Comments, recommendations, or requirements offered in the reviews are to be evaluated and annotated by the author, who will forward them to the RU/Office Chief along with the document. The author will provide a rationale for not incorporating any recommended change.**

Sensitivity Reviews. Sensitivity reviews are to be documented on ARI Form 189-R, *Sensitivity Review of Technical Documents* (April 01). Discussion of the purposes and criteria of a sensitivity review is at Attachment A, and a sample form is Attachment F.

Research Unit or Office Chiefs will do a sensitivity screening and flag documents likely to create sensitivity issues.

The Director will review the recommendations of office chiefs, and the Technical Director the recommendations of the research unit chiefs. If further sensitivity review, either in-house or external to ARI, is deemed appropriate it will be done by someone designated by the Director or Technical Director.

Documents submitted to the MS office for publication will be accompanied by a sensitivity clearance form with one of the following alternatives checked:

- No sensitivity issues.
- Sensitivity issues present, but in judgment of research unit or office chief does not require further review.
- Sensitivity issues present, and research unit or office chief requests further review at Director or Technical Director level. In this case, the Director or Technical Director will document how the sensitivity issue was resolved.

For publication (via journal, book, or book chapter) of non-ARI funded work by ARI authors, a courtesy copy of the final version of the document should be submitted to the Director or Technical Director if there are sensitivity implications. A copy of the eventual publication may be submitted to the MS office for announcement to the Defense Technical Information Center (DTIC).

Security Reviews. ARI does not have the authority to originate classification of material contained in its documents. The classification of material used will be derived from the source classification guidance or other guidance such as the classification guide for a system under development. When classified material is included in a document, the author will ensure that a security review is conducted by the appropriate agency IAW AR 380-5.

DISTRIBUTION:

DoD DISTRIBUTION STATEMENT. The research unit or office chief assigns the appropriate DoD distribution statement IAW DoD Directive 5230.24 and AR 70-11. The nature of the material contained in a document and the results of sensitivity and security reviews determine the scope of the distribution. Appropriate DoD distribution statements to appear at the bottom of front covers and inside title pages, and on the SF298, are shown in Attachment C.

PRIMARY AND SECONDARY DISTRIBUTION. The author will indicate the target audience for the initial distribution by requesting the standard ARI distribution list or special distribution on the certification memorandum. Every ARI-produced document (report or book) is filed with DTIC, which provides secondary distribution in response to requests by DoD agencies and contractors (see AR 70-11). For distribution to the general public other than copies provided by the initial distribution of ARI, DTIC provides the National Technical Information Service (NTIS) with access to all unclassified, unlimited reports.

SUBMISSION PACKAGE. A submission package for a document to be published by ARI consists of the transmittal forms and other processing documentation (one copy); the original, camera-ready document, and **one copy** of the document if it is to be printed; and a 3.5 inch disk or CD-R containing an electronic file of the camera-ready document in Microsoft Word. (Note that for standard ARI technical document series, the document is typically printed from camera-ready copy. For special reports and books, and marketing documents, the document is typically printed directly from the electronic file.) The author or COR forwards the submission package to the research unit or office chief for final approval of technical quality and certification that (1) required peer, sensitivity, and security reviews have been done and follow-up actions completed; (2) documentation is included for copyrighted materials; (3) desired distribution statement is indicated; and (4) document is camera-ready. (Use ARI Form 188-R, April 01.)

You may also e-mail your completed report to the publications office and fax the transmittal forms (signatures required). FAX number is 703-602-7744.

For journal articles and non-ARI-published books and book chapters, a record copy (journal offprint, chapter offprint, or complete book) of the article, book, or chapter will be submitted to MS within 30 days after publication.

REPRINTS. A document printed by ARI will be reprinted only when mission essential. Reprints requested for use by other activities will normally require a funds transfer from that activity. Requests for reprints will be made in writing to the Chief, MS stating the purpose, number of copies, and desired distribution.

PUBLICATION TRACKING SYSTEM (PTS). PTS contains data on technical publications produced or archived by ARI beginning in Fiscal Year 1995. Usually ARI personnel have read-only access to PTS, but PTS is not operational at this time.

DOCUMENT TYPES:

Book. ARI-published books are published with the approval of the Director. ARI-funded books by ARI personnel or contract authors that are not published by ARI are treated in the same manner as journal articles, with regard to review and approval.

Book Chapter. A complete section or chapter of a book not printed by ARI, but based on the author's work at ARI. Book chapters by ARI or contract authors are treated in the same manner as journal articles, with regard to review and approval.

Conference Paper. A paper based on the author's work at or for ARI and delivered before a professional, technical, military, or special interest group. The research unit or office chief will approve subject matter before preparation, and will approve request(s) for TDY, abstracts, and completed papers before submission to the organization sponsoring the conference. Copies of Conference Papers do not have to be submitted to MS, but RU's and Offices are responsible for including this information in their monthly reports, and maintaining an up-to-date list for use in periodic GPRA data calls.

Contractor Report. A contractor's interim or final report, from either the Science and Technology (S&T) or Study and Analysis (S&A) program, that in the judgment of the COR and research unit or office chief meets contractual obligations but may not meet ARI's scientific and/or professional standards. Submission of a document as a Contractor Report implies that the COR has reviewed the document and recommended the Contractor Report category to the research unit or office chief, and that the research unit or office chief has also reviewed the document and concurs with this recommendation. The outside cover and 'Supplementary Notes' block of the SF298 will read "This report is published to meet legal and contractual requirements and may not meet ARI's scientific and/or professional standards for publication." Contractor Reports will be filed with DTIC but not printed or distributed.

Journal Article. An article based on the author's work at or for ARI and printed in a professional or technical journal. The research unit or office chief will approve all journal articles prior to submission to a journal or archiving with MS/publications.

Research Note. Either an interim or a final report, from the S&T program (i.e., funded by 6.1, 6.2, or 6.3 dollars), typically archival or of limited interest outside ARI, filed with DTIC, and usually not printed. Research Notes fall into one of the following categories:

- In-house reports that are of limited interest outside of ARI but are considered worth submitting to DTIC to be part of DoD's archive of technical documentation.
- Interim contractor reports that are of limited interest outside of ARI but are considered worth submitting to DTIC to be part of DoD's archive of technical documentation.

- Final contractor reports that are of limited interest outside of ARI but are required to be submitted to DTIC IAW DA regulations to close a contract.
- Material related to a Research Report or Technical Report (detailed tables, graphs, charts, sample forms, and sample training and testing materials), typically in the form of appendixes, which may be published separately as a Research Note in order to economize on printing and distribution.
 - **All documents accepted for publication 12 months or more after completion of the research will be published as a Research Note or Study Note. Exceptions to this policy must be approved by the Technical Director.**

Research Product. A published report from the S&T program that is user-oriented and intended to aid Army personnel. Examples include handbooks, manuals, and guidebooks.

Research Report. A published report, from the S&T program, of completed research intended primarily for dissemination to military managers; may deal with policy-related issues and may include specific policy recommendations.

Special Report. A published report covering a broad topic of general interest or summarizing a large body of research in a particular area of interest. Special reports are intended for widespread distribution and may also serve a marketing function, and thus tend to be less technical. The Director will approve the topic and publishing of a special report; this approval must be obtained prior to obtaining publication support from MS.

Study Note. A document with the same characteristics as a Research Note except that it represents results of a study (S&A program or 6.6).

Study Report. A document with the same characteristics as a Research Report except that it represents results of a study (S&A program or 6.6).

- **Documents funded out of programs other than the S&T or S&A Programs (O&MA, for example) will be published as Study Reports or Study Notes.**

Technical Report. A published report of completed research intended primarily for dissemination to researchers. Should approximate a journal article in outline and level of detail, though larger in format due to the scope and application of the research.

Marketing Documents. These include **Fact Sheets, Brochures, Newsletters, Special Reports and some Compact Disks.** These are used as marketing tools to capture an audience and inform the reader of current and timely concepts being developed by ARI. These marketing tools must adhere to a review and publication process as all reports do.

Certain numbered series, such as APSO Survey Reports, will be processed and distributed as marketing documents. The Director will approve the initiation of the series, and the

office chief will approve individual documents. Copies will be submitted to MS/Publications prior to printing and distribution.

PREPARATION OF DOCUMENT:

Use of the word “customer”. We need to not only drop the word “customer” but also other terms that depict the Army as a business. The directive to discontinue the use of the word customer comes from the Chief of Staff, Army. He has stated that the Army is not a business and therefore does not have customers.

Use of the word “study”. If the work being documented was funded with “research” dollars (i.e., 6.2 or 6.3), the term “study” should not be used. Instead you may want to use “investigation”, “effort”, or “research”. The term “study” is appropriate for analysis work funded with 6.6 dollars.

Capitalization of the word “Soldier”. CSA guidance requires that whenever you use the word Soldier in writing, it must always be capitalized.

Covers and Inside Title Page. The cover, inside cover, and title page (page iii) will be prepared by the MS office, in the styles illustrated in Attachment E. Examples are shown to indicate what information is required for these pages. (This information should be contained in the submission package, i.e. the submission memo, peer review forms, and SF 298.) Requests for exceptions to this style will be made to the MS office.

In the title, avoid the use of introductory phrases such as “Investigation of,” “Study of,” “Development of,” “Models of,” “Observations on,” “Research on,” etc. Avoid using articles (a, an, and the) to begin a title. (Also see APA Manual, 3.13 Major Words in Titles and Headings.)

The publication date used for a document will be the date (month and year) it is approved by the Director or Technical Director and passed on to the MS office.

Executive Summary. (starts on page v). An executive summary will be prepared and included in each ARI-published Book, Research Report, Technical Report, and Study Report. The summary should be written to stand alone if removed from the report, and should be in plain, non-technical language for ease of understanding. Executive summaries are optional for other report types. Format guidance for the executive summary is at Attachment D and a sample is at Attachment E. It provides a brief statement describing the research requirement, procedure, findings, and utilization and dissemination of findings.

- a. **Research Requirement.** State the reason or need for the research, and provide a context for the research or study in the research unit or office program. Include any information about who requested the research, if applicable, and any sponsor agreement, with titles and dates of memoranda of agreement under which the research was accomplished.
- b. **Procedure.** How the research was conducted (methods and procedure).

- c. **Findings.** Present an overview of key findings in this section.
- d. **Utilization and Dissemination of Findings.** Present the use of the findings, noting the sponsor's acceptance and actual or planned use of the results or product. Reference to the use originally projected may be appropriate here. Reference any briefings or provide other clear indications that the sponsor is knowledgeable of the findings. If a briefing is cited, state the briefing date and the key individuals briefed on the results. The sponsor or sponsoring agency is included; personal names are optional. State the impact of the research on the Army, including product availability and potential use.
- e. Always state ARI's full name the first time it is used, i.e., United States Army Research Institute for the Behavioral and Social Sciences.

Acknowledgment. (page iv) An acknowledgment is optional for all document types.

Table of Contents (TOC). (Starts on **first odd-numbered page** after the Executive Summary) The TOC page includes a list of major headings, appendixes, tables, and figures. The author may opt not to list tables or figures if fewer than five of either are included in the text. Format guidance for the TOC is at Attachment D and a sample is at Attachment E.

Body of the Document. (Starts on page 1) The body of the document, or text, includes the tables and figures cited in the text (embedded). Tables and figures in appendixes may be listed at the start of the appendix. When appropriate, a large number of tables and figures may be separated from the text and published as an additional volume (e.g., as a Research Note or Study Note).

Headings. Follow the *APA Manual*, paragraph 3.30.

Footnotes. Follow the *APA Manual*, paragraph 3.87, except the footnote will appear at the bottom of the page on which it is referenced.

Tables. Follow the *APA Manual* with exceptions (see Attachment B).

Figures. Follow the *APA Manual* with exceptions (see Attachment B).

Equations. Follow the *APA Manual* with exceptions (see Attachment B).

Abbreviations and Acronyms. *AR 310-50 (Authorized Abbreviations and Brevity Codes, dated 15 November 1985), JCS Pub. 1, and United States Government Printing Office Style Manual* will be followed in that order. Abbreviations and acronyms should be avoided in publication titles unless also spelled out. All but the most common abbreviations and acronyms should be spelled out the first time they are used in the text.

Reference List. A required list of all references cited in the body of the document. The reference section should start **on the first odd-numbered page** following the main body of the text.

Bibliography. A bibliography cites works for background or further reading. A bibliography will not list works cited in the document. A bibliography is normally not included in ARI reports on research.

Appendices. Additional sections containing explanatory information deemed necessary by the author.

ELECTRONIC MEDIA (COMPACT DISKS, DVDs):

All Electronic Media products should be submitted through the ARI Technical Publication Specialist with the same forms as those required for a printed Research Product. These products must go through the same review and clearance process as required for any Research Product, after which they are processed in the same manner as printed reports and distributed as stated on the SF 298. These products will then be reviewed by the ARI Internet Content Manager for a determination of the feasibility of linking the media to ARI's public website.

Rehabilitation Act – Section 508

The following guidance is provided in order for ARI to conform to this Congressional requirement. Section 508 of the Rehabilitation Act (Attachment I) requires that U.S. federal government agencies and their contractors make their electronic documents accessible to all end users – including people with disabilities. Since all ARI publications are placed in electronic format, all publications must meet this provision. To this end, the following is required:

- a. For all contracts. Include a statement that any product deliverables must comply with Section 508 of the Rehabilitation Act ensuring that the product will be ready for posting on the public web site. Standards for Web-based information and applications ensure access for those who rely on assistive technology, such as screen readers, to access computer-based information. Certain conventions are necessary so that these devices can “read” them for the user in a sensible way. Generally, this means using tabs, text to describe graphics and photos, and the insertion of format elements into the document (see Attachment I).
- b. For all reports produced In-House. The following points will assist in the production of publications that allow a “text reader” to interpret electronic files for a person with a visual disability. Figures, tables, and pictures or other graphics should have captions that adequately and succinctly describe the material depicted in the graphic or image; or be described in the text of the document in such a way that the meaning can be easily understood by reading text alone. In APA format, we already put a label or caption on tables and figures. To make our reports 508 compliant, we need to make sure these captions or labels communicate the information so someone who cannot see the image will understand the content. A separate sheet at the end of the document should provide (for each photo, figure, table, or other graphic image) the page number; figure, table, or photo title and number; and the label/caption for each one.

Dos and Don'ts of word processing

- Do use tabs and hanging indents rather than using the spacebar.
- Do always use numbers as appropriate. For example, use the **number** one rather than the letter “L” and the **number** zero rather than the letter “O.”
- Do insert hard page break codes at the proper locations rather than using the enter key repeatedly in order to move to the next page.
- Do use page numbering codes, rather than simply typing in page numbers. Including internal links form a table of contents to chapters, or from a term to its definition in a glossary improves the reading experience for blind and sighted readers alike.
- Do use style codes to generate passages of text, such as bold, italics, or underlining.
- Don't use the enter key to end each line, as you would when using a typewriter. Rather, only use the enter key when a new paragraph should begin or when blank lines are needed.
- Don't use columns in the document. *The 'text-reader' that persons with disabilities use to access the document on the web can not read columns.*

FACT SHEETS

- FACT SHEETS follow the same procedures as other ARI documents for public distribution.
- Attached to the FACT SHEET submission for publication should be a memo stating review by the Unit Chief and clearance for the sensitivity/security issues. (This includes no mention of installations, person's identity, and location of missions).
- Copy submission should be in MS-Word. Marketing completes the FACT SHEET layout and photo and logo are inserted at that time. Length of copy is best at 800 – 1000 words. This allows room for photos while limiting the document to a two-sided handout.
- Photos are a key part of FACT SHEET appeal. The highest quality photography should be submitted. Web captured inserts do not print well.
- The completed FACT SHEET layout will be returned to the author for final review prior to print production.

NEWSLETTERS

- Word Processing:** Microsoft WORD is the basic. No need to place in columns, that step is done during layout. Use 11 or 12 point, and a font that is basic (Times New Roman, Arial) since

this is also modified during the layout process. The word-count should be between 1200 -- 1400 words.

- b. ***Design Ideas:*** It helps to have section headings as an aid to the reader to find the areas of most interest. Work on a title that provides the concept of the article.
- c. ***The Grabber:*** Develop a single sentence “grabber” that captures the key points of the article. This can be used in the Table of Contents and with your article.

d. ***Photos:*** Very important to include in a newsletter to catch the eye. Quality is important when printing photos – no captured web photos, or photos taken from documents, as these are not good for print reproduction. Send photos separately as .jpg or .tif files. The best plan is to indicate in the text where you would like the photo, number the location as a line in the text of your article and use the same number on the photo (or descriptive). When the article is in layout the photo will be placed as you indicate, whenever possible.

e. ***Tables:*** There are two primary forms, the *Word* table and *Excel* table. If the table is in Word it can be included in the text in most cases, but if the table is in Excel, then consider it the same as a photo: Mark the spot in the text of the article where it is desired, and include the Excel chart as a separate file.

f. ***Power Point:*** This popular slide program is a killer for printers. If you use power point slides as part of the article, send them as a separate file. Remember newsletters are now printed as Black & White, choose contrasting tones or patterns carefully when you create the slide.

g. ***Procedures:*** The articles are first reviewed by the Plans and Programs office, then by the Technical Director's office. The Marketing office puts them into the newsletter format. Some modifications are often necessary in this process. Once the layout is final the article is returned to the author for a final check to ensure the intent and information is correct. This is also the time to check and make any corrections in text, placement of the photos, graphs, tables, etc., or any modification of headings. The changes are then incorporated and it is sent to the government printers.

h. ***Distribution:*** The newsletters are sent to the Senior Executive Service list, the General Officer list, and the ARI list (libraries, VIP's, etc.). There are about 1,400 that are distributed. Additional copies are sent to each Unit (and authors' requests). The remainder are kept for distribution when requested by individuals and organizations, and are included in Association and Expo events.

SPECIAL REPORTS

- a. The document should be placed in a MS-Word file, 12 point font, single spaced. The marketing office, working with a graphics person, will do the layout and the cover to include photographs. It will be returned to the author for review/approval.

b. The submission should include reference to the photos, graphs, charts, etc. by number, letter, whatever system you desire. Mark the 'insert spot' where the item location is suggested. Actual insert into the text of the Special Report is not desired, but you may want such inserts for your own 'draft review document' to ease that process.

c. Provide text in MS Word, with minimal formatting (no all caps, no variety of type fonts – just bold, italic as needed, and keep in Arial or Times Roman). Photos should be separate from the MS Word file, and can be saved as (in order of preference) psd, tif, or jpg format. If jpg, it should be highest quality setting for jpg. Gif, bmp, doc, or ppt formats are not acceptable. Ensure that each photo, graph, etc. is included in original form (the power point with excel included). Do NOT download from a website or insert from a word file -- these are only 72 dpi (dots per inch) and will not work for quality printing. For photos the best case scenario would be 300 dpi resolution, and about 5 inches wide.

d. The Army has dictated that all printing now be only black & white. You can submit color photographs, but expect them to be printed as black and white. The marketing office also makes a copy for placement on the ARI Web page. The photos are color there. Note especially chart colors used for bars or lines to insure proper contrast.

e. Consider how many copies you require for Unit needs. The marketing office will add the quantity for normal distribution, and extra for Expo events. There is a new trend to have fewer copies printed and make copies of the Special Report as a CD or have available as a website link. When you produce the final document the addition of LINKS can be included to key references. That allows the reader to use the CD to reach sources you desire. Be sure the sites are valid. Also, when the Special Report is produced for the ARI Web those LINKS will be active.

f. The process of approval, clearance, and publication is through the publications office.

SUBMISSION PACKAGE:

Technical documents are to be submitted by the research unit or office to the Publications Office for publication by ARI, and/or archiving in DTIC. When submitting a document for publication or archiving, the author or COR will compile a submission package. The complete submission package has two parts: the documentation necessary for processing and the document itself. To assist authors/CORs in assembling the pieces that must be part of each package for it to be expeditiously processed by MS, the following lists the components of a package. Not all are required for each type of document or manuscript to be published (see summary table below).

Submission Documentation:

- (1) Certification Memorandum (ARI Form 188-R, April 01)
- (2) Peer review(s) (ARI Form 185-R, April 01). None for CR; 1 for RN and SN; 2 for all others
- (3) Response to peer review(s), record of how issues were resolved
- (4) Sensitivity review (ARI Form 189-R, October 2004)
- (5) Security review if applicable
- (6) Letter(s) of permission for copyrighted information, if applicable

Technical document (as required):

- (1) Report Documentation Page (SF298)
- (2) Acknowledgment (optional)
- (3) Executive summary
- (4) Table of contents
- (5) Body of the manuscript
- (6) Reference list
- (7) Appendixes

Certification Memorandum. The certification memorandum (ARI Form 188-R) is required for every submission package. An example may be found at Attachment F. The following information is required:

- (1) Title
- (2) Authors; use full names, middle initials, organization if other than ARI. For Consortium Fellows, provide both academic affiliation and note they are Fellows.
- (3) Research Unit or Office
- (4) Present Research Unit or Office Chief
- (5) Army project name and number
- (6) ARI task and work unit numbers
- (7) If contractor prepared, the name of the COR and contractor firm, and the contract number (and delivery order number, if applicable)

The memo should also state whether the standard initial distribution is requested (this is normally done for any document with unlimited distribution), and the number of additional author copies requested. (This is not required for Contractor Reports, Research Notes, or Study Notes.) The memorandum will be signed by the research unit or office chief.

Report Documentation Page (Standard Form 298). The Report Documentation Page, SF298 is needed to properly archive the document with DTIC. Detailed guidance is at Attachment G.

Final review process for Marketing Documents:

- a. Research Units produce Special Reports, Brochures, Newsletter Articles, Fact Sheets, and CDs. These types of documents usually require working with contractors, especially for the graphics involved. Because several offices address such documents before completion there is a greater possibility for mistakes.
- b. When the document has reached final format it will be returned to the author for review. The author will sign an approval stating the document is approved for printing. This approval statement is in the form of a stamp that will be imprinted on the cover of the final copy. In the case of a document from outside Headquarters, the document and stamp will be sent and returned

electronically. The stamped cover will be maintained in the report file in the Publication's Office.

Summary of selected document submission requirements

(R = Required)

Document Type	Submittal Documentation			Document Requirements
	Memo (188-R)	Sens. Rev. (189-R)	Peer Review(s) (185-R)	
ARI Book	R	*	*	R
Contractor Report	R	R		
Research Note	R	R	R(1)	Optional
Research Product	R	R	R(2)	Optional
Research Report	R	R	R(2)	R
Special Report	R	*	*	Optional
Study Note	R	R	R(1)	Optional
Study Report	R	R	R(2)	R
Technical Report	R	R	R(2)	R

* To be determined at
time of approval by Director

ATTACHMENT A: Purposes and Criteria of a Sensitivity Review

The basic purposes of a sensitivity review are:

Insure that controversial issues are discussed in a factual manner, without appearing to take an advocacy or activist position and without using inflammatory language.

Provide a “heads up” to ARI management on documented findings dealing with high-profile issues.

Provide a “heads up” to ARI field elements co-located with sponsors or proponents.

Provide added assurance of the scientific and technical basis for data which are potentially controversial.

Provide a “heads up” to sponsors and proponents on issues of direct concern to their mission, and an opportunity to coordinate or review findings, as appropriate. Part of this is insuring that the appropriate sponsors and proponents have been briefed on findings before they are released for open publication.

Identify areas where increased proponency may be required to insure acceptance of findings.

Insure that any recommendations made as a result of findings are consistent with DoD and Army policy, or are realistic with regard to the prospect of policy changes.

Criteria: Subjects considered *prima facie* sensitive based on current guidance are:

1. Findings of adverse impact on the basis of gender, race, or ethnic group.
2. Issues of sexual preference.
3. Sexual harassment.
4. Army Assessment findings.
5. Findings counter to existing or proposed Army policy or programs.

ATTACHMENT B: Exceptions to the Editorial and Format Style of the APA Manual

General Exceptions.

- a. Documents submitted for publication are to be unbound and single spaced.
- b. Since most documents submitted for publication will be in camera-ready form, reasonable exceptions to APA style may be appropriate. Specific exceptions which are standard for ARI documents are listed below.

Specific Exceptions. Specific exceptions, keyed to the section of the APA Manual, follow.

- a. *Permission to quote.* When you have determined from the copyright owner that permission to quote is required, obtain a letter of permission and include the letter with your submission of manuscript and documents to MS (sec. 3.34).
- b. *Type style.* Selection of type style may be made from the standard MS Word package. The preferred typeface according to the APA Manual is elite, 12-point Times Roman or 12-point Courier.
- c. Do not use a dot matrix printer for anything in the main body of text.
- d. *Line spacing.* Single space between all lines of the text.
- e. *Margins.* Margins of text pages are to be 1 inch on all four sides (sec. 4.04).
- f. *Order of pages.* ARI publications do not require an abstract page, or separate pages for author identification, footnotes, tables, or figures. Abstracts are written, however, for insertion in the "Abstract" block of SF298 (sec. 4.05).
- g. *Pagination.* Center page numbers $\frac{1}{2}$ inch from the bottom center of the page. Front matter (the SF298, title page, executive summary, table of contents, and lists of tables and figures) is numbered with lower case Roman numerals; the first page of text is numbered with arabic numeral "1," and every page with text is numbered. Number on a blank left-hand page is to be omitted. Every right-hand page is odd numbered (1, 3, 5). The reference list is included with the Arabic numbering of the text, and should begin on an odd-numbered page (preceded, if necessary, by a numbered blank page). Each appendix page is numbered with a capital letter, a hyphen, then an Arabic numeral, sequentially (sec. 4.06), starting with the first page of the appendix. (An appendix may have a separate title page but it will be numbered.)
- h. *Short titles.* ARI publications do not use short titles to identify pages (sec. 4.06).

- i. *Corrections.* Do not insert corrections in margins or line spaces. The document is to be camera ready (sec. 4.07).
- j. *Footnotes.* Follow the APA Manual, paragraph 3.87 except the footnote will appear at the bottom of the page on which it is referenced.
- k. *Quotations.* Do not use hand-drawn brackets (sec. 4.13).
- l. *Statistical and mathematical expressions.* Do not use hand-drawn symbols. Do not label, circle, or explain ambiguous symbols on the manuscript. If you believe a symbol is unclear, discuss its representation with a MS staff person before submitting the manuscript for publication (sec. 4.14).
- m. *Title page.* For ARI published reports, title pages will be prepared by MS. ARI publications do not use running heads (sec. 4.15).
- n. *References.* The reference list is single spaced since the author is preparing the document in final form - ready for print. Standard format for references is first line flush left, other lines hanging indent, double space between references. The choice between underlining and italics is optional. Whenever the author knows the DTIC number of an ARI or other DoD publication, it should be cited in the reference list.
- o. *Appendixes.* Single space the appendixes (sec. 4.19).
- p. *Tables and figures.*
 - (1) Include tables and figures within the text, as soon after the pertinent discussion as the page layout will allow. This inclusion eliminates the requirement to provide instructions set off by horizontal lines, to mark the illustration on the back, and to type figure captions on a separate page. Tables and figures are to be camera ready (sec. 4.21) and formatted for 8 1/2 x 11 pages (landscape or portrait), unless special arrangements are made for fold-out pages.
 - (2) Do not underline table titles. Tables may be single or double spaced, with readability as the primary criterion. Type face may be selected from the standard MS Word package, to include italics if appropriate.
 - (3) Figures which are in color on the original should be accompanied by a black-and-white version for printing purposes.
 - (4) Place figure captions flush left and two spaces below figure. Use Arabic numerals, capitalizing only the first word and proper names. Do not underline the word "Figure" or the number.
 - (5) The numbering of tables and figures is sequential. In the body of the text, numbering will start with Table 1 and Figure 1. In appendixes, the numbering will

start over in each appendix and include the letter name of that appendix, i.e., Table A-1, Table C-1, or Figure C-1.

ATTACHMENT C: Distribution Lists and DoD Distribution Statements

Section I. Distribution Lists

C-1. Distribution. First-time distribution of ARI reports is made by MS through Defense Automated Printing Service and Distribution and Dispatch Branch, Pentagon. When a document is sent to the printer a file copy is forwarded to DTIC for secondary distribution to requesters from within the Government and from authorized nations and contractors. DTIC supplies the National Technical Information Service of the U.S. Department of Commerce with accession (AD) numbers for that agency to respond to requests from the public. Requests for copies of ARI publications will be referred to these agencies.

C-2. Standard distribution Lists. ARI maintains a standard distribution list for first-time external and internal distribution. External distribution is directed to selected staff of the Department of the Army, U.S. Army major commands (MACOMs), the libraries of U.S. Army Centers and Schools, sister service units, and the Library of Congress for further distribution to universities and selected organizations of the discipline.

C-3. Special Distribution. Any other distribution is classified as "special" and requests must be made in writing to MS. A desired distribution that adds to, or removes, addresses on a standard list is considered a special distribution. When a special distribution includes addressees outside of ARI, the mailing labels will be provided to MS by the originating research unit or office. If a special distribution includes ALL addressees on a standard list, only the mailing labels for the additional addresses need to be provided.

Section II. DoD Distribution Statements

C-4. General.

Before submission of a camera-ready manuscript for printing, the research unit or office chief, in accordance with regulations, must determine the distribution statement-whether the content is classified or otherwise limited. The distribution statement is included on the SF298 and will be affixed to the printed document.

C-5. Distribution Statement A. "Approved for public release; distribution is unlimited."

C-6. Distribution Statement B. "Distribution authorized to U.S. Government Agencies only, to protect" (reason), (date of determination). "Other requests for this document shall be referred to" (insert controlling DoD office).

Also requires destruction notice. (See C-12.b.)

Reasons: foreign government information, proprietary information, test and evaluation, contractor performance evaluation, administrative or operational use, software documentation, specific authority (cite the authority).

C-7. Distribution Statement C. “Distribution authorized to U.S. Government agencies and their contractors to protect” (reason), (date of determination). “Other requests for this document shall be referred to” (insert controlling DoD office).

Also requires destruction notice. (See C-12.b.)

Reasons: critical technology, administrative or operational use, specific authority (cite the authority).

C-8. Distribution Statement D. “Distribution authorized to Department of Defense and U.S. DoD contractors (fill in reason), (date of determination). Other requests for this document shall be referred to” (insert controlling DoD office).

Also requires destruction notice. (See C-12.b.)

Reasons: premature dissemination, software documentation, critical technology, specific authority (cite authority).

C-9. Distribution Statement E. “Distribution authorized to DoD components only to protect” (reason), (date of determination). “Other requests for this document shall be referred to” (insert controlling DoD office).

Also requires destruction notice. (See C12.b.)

Reasons: export limitations (see C-12.a), foreign government information, premature dissemination, software documentation, critical technology, specific authority (cite authority).

C-10. Distribution Statement F. “Further dissemination only as directed by” (insert controlling DoD office), (date distribution determined) “or higher DoD authority.”

Also requires destruction notice. (See C12.b.)

C-11. Distribution Statement X. “Distribution authorized to U.S. Government agencies and private individuals or enterprises eligible to obtain export-controlled technical data in accordance with DoD Directive 5230.25, *Unclassified Technical Data from Public Disclosure* (date of determination). DoD Controlling Office is (insert)”.

To be used when Statements B, C, D, E, **or F** are not applicable, but the document contains technical data. Not to be used on classified technical documents. Also requires destruction notice. (See C-12.b.)

C-12. Additional notices.

- a. All technical documents determined to contain *export-controlled technical data will be marked*:

“**WARNING**--This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751 *et seq*) or Executive Order 12470. Violations of these export laws are subject to severe criminal penalties.”

- b. All technical documents marked with Distribution Statements B, C, D, E, F, or X will also be marked “**DESTRUCTION NOTICE**--For classified documents, follow procedure in DoD 5200.22-M, Industrial Security Manual II-19 or DoD 5200.1-R, Information Security Program Regulation, Chapter IX. For unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.”
- c. Contractor-imposed statements. An approved statement from the Federal Acquisition Manual shall appear on all copies of each document to provide control of contractor-controlled technical data to which the Government has limited rights. Limited-rights information shall be assigned Distribution Statement B.

ATTACHMENT D: Format Guidance For Executive Summary And Table Of Contents

EXECUTIVE SUMMARY:

The title of the report will be typed all in capital letters, starting flush left, on the first line of the page. Type EXECUTIVE SUMMARY two spaces below the title, with margin-to-margin underscore. Type the first summary paragraph heading one space below EXECUTIVE SUMMARY. There is one space between text and the next summary paragraph heading. The four summary paragraph headings are Research Requirement, Procedure, Findings, and Utilization and Dissemination of Findings. Executive summaries continuing onto a second or higher page require no heading on those pages.

TABLE OF CONTENTS

The title of the report will be typed all in capital letters, starting flush left, on the first line of the page. Type CONTENTS on the second line below the title, with margin-to-margin underscore. Type Page flush with right margin, on the second line below CONTENTS. Double space and enter first level 1 head (all caps). Level 2 heads (upper and lower case) start off double spaced below level 1 heads, indented .25 inches, and are singled spaced from then on. Level 3 heads are not normally listed in the TOC unless five or more levels are used in the document. Single space before next level 1 head. Treat appendixes as level 1 heads. Use dot leaders between entry and page number, starting after the last word of the section title. **Page numbers must be flush right, i.e. lined up vertically.** Use two spaces before LIST OF TABLES and LIST OF FIGURES and single space between entries. A TOC continued onto another page should be headed CONTENTS (continued), with underscore as above.

ATTACHMENT E: Sample “Front End” Components of Technical Documents

COVER (Pages 25-30)
INSIDE COVER (Page 31)
SF 298 (Page 32)
INSIDE TITLE PAGE (Page 33)
EXECUTIVE SUMMARY (Pages 34 -35)
TABLE OF CONTENTS (Pages 36-37)

Note that the way **Consortium students’ affiliation** is shown on published reports is standardized as follows:

For the cover and inside title page:

(Name of Student)
(Name of School) (note – location not included)
Consortium Research Fellows Program

A **professor’s affiliation** is shown on published reports as follows:

For the cover and inside title page:

(Name of Professor)
(Name of School) (note – location not included)
Senior Consortium Research Fellow

For the SF298, affiliation will be the school only, in parentheses, after the student’s name or professor’s name (in block 6, Author(s)).

The **third category** is as follows:

For the cover and inside title page:

(Name of researcher)
Consortium Post-Doctoral Fellows

ARI Contractor Report 2005-01

Best Practices in Sexual Harassment Policy and Assessment

Pamela C. Alexander

University of Maryland – College Park

Elmore R. Alexander

Philadelphia University

Stephanie Warner

University of Maryland – College Park

This report is published to meet legal and contractual requirements and may not meet ARI's scientific or professional standards for publication.

February 2005

United States Army Research Institute for the Behavioral and Social Sciences

Approved for public release; distribution is unlimited.

ARI Research Note 2005-02

Digital C3 Systems: Potential for Sharing Lessons Learned Across Services

John S. Barnett
U.S. Army Research Institute



Simulator Systems Research Unit
Stephen L. Goldberg, Chief

December 2004

**United States Army Research Institute
for the Behavioral and Social Sciences**

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Research Product 2005-02

Train-the-Trainer Package for the Full Spectrum Warrior Game

James H. Centric
Northrop Grumman Mission Systems

Scott A. Beal, and Richard E. Christ
U.S. Army Research Institute

October 2004

Infantry Forces Research Unit

**United States Army Research Institute
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**U.S. Army Research Institute
for the Behavioral and Social Sciences**

Research Report 1830

**Battle Command Visualization 101:
Prototype Embedded Training on Networked Sensors**

Carl W. Lickteig
U.S. Army Research Institute

Charles G. Heiden and William T. Holden, Jr.
Human Resources Research Organization

December 2004

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Results and Recommendations from a Survey of Army Deserters and Leaders

Peter F. Ramsberger
Human Resources Research Organization

D. Bruce Bell
U.S. Army Research Institute



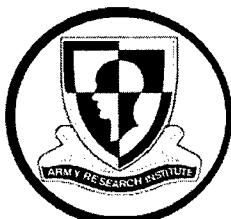
**United States Army Research Institute
for the Behavioral and Social Sciences**

December 2004

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Evaluation of Alternative Aptitude Area (AA) Composites and Job Families for Army Classification

**Tirso Diaz, Michael Ingerick,
and Mary Ann Lightfoot**
Human Resources Research Organization



**United States Army Research Institute
for the Behavioral and Social Sciences**

December 2004

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Technical Report 1153

Applying Consensus Based Measurement to the Assessment of Emerging Domains

**Peter J. Legree, Joseph Psotka,
and Trueman R. Tremble, Jr.
U. S. Army Research Institute**

**Dennis Bourne
Howard University
Consortium Research Fellows Program**

January 2005



**United States Army Research Institute
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for the Behavioral and Social Sciences**

**A Directorate of the Department of the Army
Deputy Chief of Staff, G1**

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Technical Director**

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Director**

Research accomplished under contract
for the Department of the Army

Human Resources Research Organization

Technical review by

Richard E. Christ, U.S. Army Research Institute
Dorothy L. Finley, U.S. Army Research Institute

NOTICES

DISTRIBUTION: Primary distribution of this Research Report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, Attn: DAPC-ARI-MS, 2511 Jefferson Davis highway, Arlington, Virginia 22202-3926.

FINAL DISPOSITION: This Research Report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this Research Report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

REPORT DOCUMENTATION PAGE					
1. REPORT DATE (dd-mm-yy) February 2005	2. REPORT TYPE Final	3. DATES COVERED (from... to) January 2002 – June 2004			
4. TITLE AND SUBTITLE Developing Adaptive Proficiency in Special Forces Officers			5a. CONTRACT OR GRANT NUMBER DASW01-98-D-0049		
			5b. PROGRAM ELEMENT NUMBER 0602785A		
6. AUTHOR(S) Susan S. White, Rose A. Mueller-Hanson, David W. Dorsey, and Elaine D. Pulakos (Personnel Decisions Research Institutes, Inc.); Michelle M. Wisecarver (U.S. Army Research Institute); Edwin A. Deagle III and Kip G. Mendini (U.S. Army John F. Kennedy Special Warfare Center and School).			5c. PROJECT NUMBER 20262785A790		
			5d. TASK NUMBER 103		
			5e. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Personal Decisions Research Institutes, Inc. 1300 North 17 th Street Suite 1010 Arlington, VA 22209			8. PERFORMING ORGANIZATION REPORT NUMBER		
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			11. MONITOR REPORT NUMBER Research Report 1831		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES Contracting Officer's Representative and Subject Matter POC: Dr. Michelle Wisecarver					
14. ABSTRACT (Maximum 200 words): Adaptive proficiency is critical for operating in the dynamic Special Forces (SF) mission environment and a recent focus on this requirement has resulted in a greater emphasis on adaptability in current training for SF. This report describes the development of a 3½-day course on adaptability specifically tailored to officers in the SF environment. The course, entitled Officer Adaptive Thinking and Leadership Course (O-ATL), introduces students to the meaning of adaptability in the SF environment, covering the myriad of ways in which SF officers are required to adapt. It focuses particularly on the topics of mental adaptability, interpersonal adaptability, and leading an adaptable team and provides the students with an understanding of each topic's relevance to their SF jobs, as well as tools and strategies for better navigating situations that require these types of adaptability. Recommendations for enhancements of the course and further applications of the course are discussed.					
15. SUBJECT TERMS Adaptive performance, leadership, mental adaptability, interpersonal adaptability, leader adaptability, training adaptive performance, Special Forces training					
16. REPORT SECURITY CLASSIFICATION OF Unclassified			17. ABSTRACT Unclassified	18. THIS PAGE Unclassified	19. LIMITATION OF ABSTRACT Unlimited
				20. NUMBER OF PAGES 38	21. RESPONSIBLE PERSON Ellen Kinzer Technical Publications Specialist 703-602-8047

Technical Report 1153

**Applying Consensus Based Measurement
to the Assessment of Emerging Domains**

**Peter J. Legree, Joseph Psotka,
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**Dennis Bourne
Howard University
Consortium Research Fellows Program**

**Selection and Assignment Research Unit
Michael G. Rumsey, Chief**

**U.S. Army Research Institute for the Behavioral and Social Sciences
2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926**

January 2005

**Army Project Number
201611101A91E**

**In-House Laboratory
Independent Research**

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APPLYING CONSENSUS BASED MEASUREMENT TO THE ASSESSMENT OF EMERGING DOMAINS

EXECUTIVE SUMMARY

Research Requirement:

Over the past decade, scenario based scales have been developed to measure knowledge, abilities, and expertise in performance domains. Most applications have utilized expert groups to develop scoring standards. Scales, and especially predictor scales, are produced using a subset of items selected to differentiate high and low performing examinees. Resultant tests are usually accurate, reliable, and frequently valid, against some external criterion.

However, much knowledge is intuitive and tacit, and might be called mere opinion, so there may be no formal knowledge sources, external criterion, or even experts who can provide appropriate standards. In many areas such as art, music, politics, government, and economics experts may have, or seem to have, markedly different views, rationales, and evidentiary sources than the diverse populations of interest to researchers.

Some applications of scenario-based scales have used scoring keys based on data collected from large groups of knowledgeable, but non-expert respondents. In these earlier papers, the use of non-expert groups to develop scoring standards was termed “Consensual Scoring” or more broadly, “Consensus Based Measurement (CBM)”. CBM offers unique, analytic powers for exploration and measurement within domains that lack objective standards, an established body of knowledge or an available pool of experts.

Procedure:

The report compares CBM to traditional scale construction and scoring practices, details the methods and findings of a number of past efforts that have employed CBM as a scoring method, and provides a rationale for the use of CBM.

Findings:

The data summarized in this report demonstrate substantial convergence between situational judgment test scores computed using expert based scoring standard and those computed using examinee based standards: score correlations ranged from .88 to .995 across four applications for which expert and consensus based scores were available. This convergence indicates that examinee response distributions may be used to score situational judgment tests when expert responses are not available.

Comparisons of measures scored using examinee based standards with criterion measures showed a strong correlation between their respective scores. Findings such as this demonstrate that consensus based measures are both feasible and valid.

Utilization and Dissemination of Findings:

The assessment of knowledge corresponding to “soft” domains, or emerging domains such as emotional and social intelligence, where the codification and formalization of knowledge is only beginning, cries out for the use of this new technology. Though ill-defined, these domains are often of considerable consequence: knowledge and expertise related to driving safety, leadership, and social functioning can and do substantially impact an individual’s performance and quality of life.

APPLYING CONSENSUS BASED MEASUREMENT TO THE ASSESSMENT OF EMERGING DOMAINS

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ATTACHMENT F: ARI Transmittal Forms

CERTIFICATION MEMO (“template”) (ARI Form 188-R) (Pages 39-40)
(Available on S:Kinzer/ARI Form 188-R, cert memo)

PEER REVIEW form (ARI Form 185-R) (Page 41)
(Available on S:Kinzer/ARI Form 185-R, April 2001- peer review)

SENSITIVITY REVIEW OF TECHNICAL DOCUMENTS form (ARI Form 189-R)
(Page 42- 43)
(Available on S:Kinzer/ARI Form 189-R, October 2004-sens. review)

DAPE-ARI-XX

DATE:

MEMORANDUM FOR TECHNICAL PUBLICATION SPECIALIST

SUBJECT: Certification and Transmittal of a (Research, Technical, etc.) Report

1. The enclosed camera-ready document is submitted:
 - a. Title:
 - b. First author and affiliation:
 - c. Contributing author(s) and affiliation(s):
 - d. Research unit or office:
 - e. Research unit chief:
 - f. Army project name:
 - g. Army project number:
 - h. ARI work unit number:
 - i. ARI task number:
 - j. Contracting officer's representative:
 - k. Name of contractor:
 - l. Contract number:
2. The DoD Distribution Statement is: Approved for public release; distribution is unlimited.
3. First-time distribution is: (ARI's standard distribution list)
4. Additional author copies requested are: (# of copies for author/COR's unit/office)

Encls

Signature Block of Chief

1. Peer reviews
2. Sensitivity review (ARI Form 189)
3. Security review
4. Letter of permission for copyrighted information
5. Report Documentation Page (SF298)
6. Acknowledgement
7. Executive Summary
8. Table of contents
9. Body of camera-ready report

10. Reference list
11. Appendixes
12. Special distribution mailing labels (if required)

PEER REVIEW
(subject matter expert review)

This form is to be submitted to the Publications Office with each technical document intended for publication by ARI.

Document title: _____

First Author: _____

Full name of reviewer (please print or type): _____

Reviewer's affiliation: _____

Intended document type (category of publication): _____

Reviewer's recommendation (include comments below, or attach comments or annotated text as appropriate):

Publish as is
 Publish after minor modifications
 Publish after major modifications
 Do not publish

My name may/may not (circle one) be listed as reviewer.
(you will not be listed if you oppose publication.)

Reviewer's signature _____

Date _____

SENSITIVITY REVIEW OF TECHNICAL DOCUMENTS

This form is to be submitted with each technical document intended for publication by ARI.

Date: _____

1. Document title: _____

2. First author: _____

3. Certification by Research Unit or Office Chief:

Based on my review of this document, I designate it as follows (check one):

- ____ a. No sensitivity issues.
- ____ b. Sensitivity issues present, but in my judgment does not require further review.
- ____ c. Sensitivity issues present, and I request/recommend further review.

Sensitivity issues are as follows:

d. (signed) _____ Chief, _____

This report MAY be placed on : Housenet Public Site

This report may NOT be placed on : Housenet Public Site

(continued)

ARI Form 189-R, October 2004

4. Director or Technical Director

a. Action to be taken:

_____ (1) Publish without further review

_____ (2) Further Coordination/review (by: _____)

Result:

b. (signed) _____ (Dir or TD)

This report MAY be placed on: Housenet Public Site

This report may NOT be placed on: Housenet Public Site

ATTACHMENT G: Guidance for SF 298, “Report Documentation Page”

Note: Use Eforms or any other MS Word version.

Elements 1, 11, and 20: LEAVE BLANK. MS assigns and enters the report number, the date of the report, and the page count. The “Performing Organization Report Number” block may contain a contractor-assigned report number when applicable.

Element 2: “Report type” refers not to the ARI publication series but to whether or not the report is an INTERIM or FINAL report from the contract/delivery order/in-house effort. Typically there will only be one FINAL report from a given piece of research; other documentation will be INTERIM. However, supplementary documentation to a FINAL report, published as an RN, for example, could also be considered “FINAL.” (These designations should also correspond to the deliverables list for a contract or delivery order.) Note also that it is the FINAL report that satisfies DTIC’s requirement for documenting a contract or delivery order.

Element 3: “Dates covered” (item 3) refers to the time span of the research and should not include time spent reviewing or rewriting the report.

Element 5b: For work done from FY98 on, there is only one program element number and project number for 6.2 efforts: 622785 and A790. (The inside title page will list the project name as “Personnel Performance and Training Technology”.) Likewise, the only program element and project numbers for 6.3 efforts are: 633007 and A792. (The project name is “Personnel Performance and Training”.)

Elements 6: Include affiliations, either “U.S. Army Research Institute” (for in-house) or the contractor name (may be abbreviated). For Consortium Fellows, the affiliation is the school they attend.

Element 7: The contractor’s name and address if a contract effort. If in-house, the name and address of the RU or Office.

Element 9: If a contract effort, the address of ARI HQ with an attention line for the monitoring RU (even if a field element) or Office. If in-house, the address of ARI HQ with no attention line.

Element 12: Appropriate distribution statement (see Attachment C).

Element 13: For a contractor-prepared document, the COR’s name will be entered in the “Supplementary Notes” block. The format will be name, without title (Mr., Ms., Dr., or other). Also state the name of the Subject Matter POC.

Element 19: “Unlimited” (not “Unclassified”).

Element 21: Ellen Kinzer, Technical Publication Specialist, (703) 602-8047.

ATTACHMENT H: Typical timelines for various types of technical documents

Special Reports

Log-in/initial review/initial coordination with Tech Dir/Dir -- 1 week
Meeting with document preparation people (contract) – 1 week
Document preparation including graphics, photos – 2 weeks
Review by Author/COR/Pubs – 1 week
Changes and production of final version – 1 week
Coordination with DAPS liaison – 1 week
Processing thru DAPS to contractor – 2 weeks
Contractor production of proof – 2 weeks
Review of proof – 1 week
Print run – 2 weeks
Distribution – 2 weeks

TOTAL: 19 weeks (approx. 4 months)

Books

Log-in/initial review/initial coordination with Tech Dir/Dir -- 1 week
Meeting with document preparation people (contract or DLA) – 1 week
Document preparation including graphics, photos – 2 months
Review by Author/COR/Pubs – 2 weeks
Changes and production of final version – 2 weeks
Coordination with DAPS liaison – 1 week
Processing thru DAPS to contractor – 2 weeks
Contractor production of proof – 2 weeks
Review of proof – 1 week
Print run – 2 weeks
Distribution – 2 weeks

TOTAL: 25 weeks (approx. 5 ½ months)

Standard publications

Printed

Log-in, format review, front end prep, folio – 1 week
Review by TD, changes as needed – 2 weeks
Final prep, print order, submission to DTIC – 1 week
Printing – 3 weeks
Distribution – 2 weeks

TOTAL: 9 weeks (approx. 2 months)

Not Printed – 1 week total

Log-in, format review, front end prep
Submission to DTIC

1998 Amendment to Section 508 of the Rehabilitation Act

Section 508 of the Rehabilitation Act (29 U.S.C. 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998

SEC. 508. ELECTRONIC AND INFORMATION TECHNOLOGY

(a) REQUIREMENTS FOR FEDERAL DEPARTMENTS AND AGENCIES.--

(1) ACCESSIBILITY.--

(A) DEVELOPMENT, PROCUREMENT, MAINTENANCE, OR USE OF ELECTRONIC AND INFORMATION TECHNOLOGY.--When developing, procuring, maintaining, or using electronic and information technology, each Federal department or agency, including the United States Postal Service, shall ensure, unless an undue burden would be imposed on the department or agency, that the electronic and information technology allows, regardless of the type of medium of the technology--

(i) individuals with disabilities who are Federal employees to have access to and use of information and data that is comparable to the access to and use of the information and data by Federal employees who are not individuals with disabilities; and

(ii) individuals with disabilities who are members of the public seeking information or services from a Federal department or agency to have access to and use of information and data that is comparable to the access to and use of the information and data by such members of the public who are not individuals with disabilities.

(B) ALTERNATIVE MEANS EFFORTS.--When development, procurement, maintenance, or use of electronic and information technology that meets the standards published by the Access Board under paragraph (2) would impose an undue burden, the Federal department or agency shall provide individuals with disabilities covered by paragraph (1) with the information and data involved by an alternative means of access that allows the individual to use the information and data.

(2) ELECTRONIC AND INFORMATION TECHNOLOGY STANDARDS.--

(A) IN GENERAL.--Not later than 18 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the Architectural and Transportation Barriers Compliance Board (referred to in this section as the 'Access Board'), after consultation with the Secretary of Education, the Administrator of General Services, the Secretary of Commerce, the Chairman of the Federal Communications Commission, the Secretary of Defense, and the head of any other Federal department or agency that the Access Board determines to be appropriate, including consultation on relevant research findings, and after consultation with the electronic and information technology industry and appropriate public or nonprofit agencies or organizations, including organizations representing individuals with disabilities, shall issue and publish

standards setting forth--

- (i) for purposes of this section, a definition of electronic and information technology that is consistent with the definition of information technology specified in section 5002(3) of the Clinger-Cohen Act of 1996 (40 U.S.C. 1401(3)); and
- (ii) the technical and functional performance criteria necessary to implement the requirements set forth in paragraph

(1). (B) REVIEW AND AMENDMENT.--The Access Board shall periodically review and, as appropriate, amend the standards required under subparagraph (A) to reflect technological advances or changes in electronic and information technology.

(3) INCORPORATION OF STANDARDS.--Not later than 6 months after the Access Board publishes the standards required under paragraph (2), the Federal Acquisition Regulatory Council shall revise the Federal Acquisition Regulation and each Federal department or agency shall revise the Federal procurement policies and directives under the control of the department or agency to incorporate those standards. Not later than 6 months after the Access Board revises any standards required under paragraph (2), the Council shall revise the Federal Acquisition Regulation and each appropriate Federal department or agency shall revise the procurement policies and directives, as necessary, to incorporate the revisions.

(4) ACQUISITION PLANNING.--In the event that a Federal department or agency determines that compliance with the standards issued by the Access Board under paragraph (2) relating to procurement imposes an undue burden, the documentation by the department or agency supporting the procurement shall explain why compliance creates an undue burden.

(5) EXEMPTION FOR NATIONAL SECURITY SYSTEMS.--This section shall not apply to national security systems, as that term is defined in section 5142 of the Clinger-Cohen Act of 1996 (40 U.S.C. 1452).

(6) CONSTRUCTION.--

(A) EQUIPMENT.--In a case in which the Federal Government provides access to the public to information or data through electronic and information technology, nothing in this section shall be construed to require a Federal department or agency--

- (i) to make equipment owned by the Federal Government available for access and use by individuals with disabilities covered by paragraph (1) at a location other than that where the electronic and information technology is provided to the public; or

- (ii) to purchase equipment for access and use by individuals with disabilities covered by paragraph (1) at a location other than that where the electronic and information technology is provided to the public.

(B) SOFTWARE AND PERIPHERAL DEVICES.--Except as required to comply with standards issued by the Access Board under paragraph (2), nothing in paragraph (1) requires the

installation of specific accessibility-related software or the attachment of a specific accessibility-related peripheral device at a workstation of a Federal employee who is not an individual with a disability.

(b) TECHNICAL ASSISTANCE.--The Administrator of General Services and the Access Board shall provide technical assistance to individuals and Federal departments and agencies concerning the requirements of this section.

(c) AGENCY EVALUATIONS.--Not later than 6 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the head of each Federal department or agency shall evaluate the extent to which the electronic and information technology of the department or agency is accessible to and usable by individuals with disabilities described in subsection (a)(1), compared to the access to and use of the technology by individuals described in such subsection who are not individuals with disabilities, and submit a report containing the evaluation to the Attorney General.

(d) REPORTS.--

(1) INTERIM REPORT.--Not later than 18 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the Attorney General shall prepare and submit to the President a report containing information on and recommendations regarding the extent to which the electronic and information technology of the Federal Government is accessible to and usable by individuals with disabilities described in subsection (a)(1).

(2) BIENNIAL REPORTS.--Not later than 3 years after the date of enactment of the Rehabilitation Act Amendments of 1998, and every 2 years thereafter, the Attorney General shall prepare and submit to the President and Congress a report containing information on and recommendations regarding the state of Federal department and agency compliance with the requirements of this section, including actions regarding individual complaints under subsection (f).

(e) COOPERATION.--Each head of a Federal department or agency (including the Access Board, the Equal Employment Opportunity Commission, and the General Services Administration) shall provide to the Attorney General such information as the Attorney General determines is necessary to conduct the evaluations under subsection (c) and prepare the reports under subsection (d).

(f) ENFORCEMENT.--

(1) GENERAL.--

(A) COMPLAINTS.--Effective 6 months after the date of publication by the Access Board of final standards described in subsection (a)(2), any individual with a disability may file a complaint alleging that a Federal department or agency fails to comply with subsection (a)(1) in providing electronic and information technology.

(B) APPLICATION.--This subsection shall apply only to electronic and information technology

that is procured by a Federal department or agency not less than 6 months after the date of publication by the Access Board of final standards described in subsection (a)(2).

(2) ADMINISTRATIVE COMPLAINTS.--Complaints filed under paragraph (1) shall be filed with the Federal department or agency alleged to be in noncompliance. The Federal department or agency receiving the complaint shall apply the complaint procedures established to implement Section 504 for resolving allegations of discrimination in a federally conducted program or activity.

(3) CIVIL ACTIONS.--The remedies, procedures, and rights set forth in sections 505(a)(2) and 505(b) shall be the remedies, procedures, and rights available to any individual with a disability filing a complaint under paragraph (1).

(g) APPLICATION TO OTHER FEDERAL LAWS.--This section shall not be construed to limit any right, remedy, or procedure otherwise available under any provision of Federal law (including sections 501 through 505) that provides greater or equal protection for the rights of individuals with disabilities than this section.

Section 508 Standards

- Subpart A -- General
 - 1194.1 Purpose.
 - 1194.2 Application.
 - 1194.3 General exceptions.
 - 1194.4 Definitions.
 - 1194.5 Equivalent facilitation.
- Subpart B -- Technical Standards
 - 1194.21 Software applications and operating systems.
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 - 1194.23 Telecommunications products.
 - 1194.24 Video and multimedia products.
 - 1194.25 Self contained, closed products.
 - 1194.26 Desktop and portable computers.
- Subpart C -- Functional Performance Criteria
 - 1194.31 Functional performance criteria.
- Subpart D -- Information, Documentation, and Support
 - 1194.41 Information, documentation, and support.
- Figures to Part 1194

Authority: 29 U.S.C. 794d.

Subpart A -- General Â§ 1194.1 Purpose.

The purpose of this part is to implement section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794d). Section 508 requires that when Federal agencies develop, procure, maintain, or use electronic and information technology, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency. Section 508 also requires that individuals with disabilities, who are members of the public seeking information or services from a Federal agency, have access to and use of information and data that is comparable to that provided to the public who are not individuals with disabilities, unless an undue burden would be imposed on the agency.

Â§ 1194.2 Application.

(a) Products covered by this part shall comply with all applicable provisions of this part. When developing, procuring, maintaining, or using electronic and information technology, each agency shall ensure that the products comply with the applicable provisions of this part, unless an undue burden would be imposed on the agency.

(1) When compliance with the provisions of this part imposes an undue burden, agencies shall provide individuals with disabilities with the information and data involved by an alternative means of access that allows the individual to use the information and data.

(2) When procuring a product, if an agency determines that compliance with any provision of this part imposes an undue burden, the documentation by the agency supporting the procurement shall explain why, and to what extent, compliance with each such provision creates an undue burden.

(b) When procuring a product, each agency shall procure products which comply with the provisions in this part when such products are available in the commercial marketplace or when such products are developed in response to a Government solicitation. Agencies cannot claim a product as a whole is not commercially available because no product in the marketplace meets all the standards. If products are commercially available that meet some but not all of the standards, the agency must procure the product that best meets the standards.

(c) Except as provided by Â§1194.3(b), this part applies to electronic and information technology developed, procured, maintained, or used by agencies directly or used by a contractor under a contract with an agency which requires the use of such product, or requires the use, to a significant extent, of such product in the performance of a service or the furnishing of a product.

Â§ 1194.3 General exceptions.

(a) This part does not apply to any electronic and information technology operated by agencies, the function, operation, or use of which involves intelligence activities, cryptologic activities related to national security, command and control of military forces, equipment that is an integral part of a weapon or weapons system, or systems which are critical to the direct fulfillment of military or intelligence missions. Systems which are critical to the direct fulfillment of military or intelligence missions do not include a system that is to be used for routine administrative and business applications (including payroll, finance, logistics, and personnel management applications).

(b) This part does not apply to electronic and information technology that is acquired by a contractor incidental to a contract.

(c) Except as required to comply with the provisions in this part, this part does not require the installation of specific accessibility-related software or the attachment of an assistive technology device at a workstation of a Federal employee who is not an individual with a disability.

- (d) When agencies provide access to the public to information or data through electronic and information technology, agencies are not required to make products owned by the agency available for access and use by individuals with disabilities at a location other than that where the electronic and information technology is provided to the public, or to purchase products for access and use by individuals with disabilities at a location other than that where the electronic and information technology is provided to the public.
- (e) This part shall not be construed to require a fundamental alteration in the nature of a product or its components.
- (f) Products located in spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment are not required to comply with this part.

Â§ 1194.4 Definitions.

The following definitions apply to this part:

Agency. Any Federal department or agency, including the United States Postal Service.

Alternate formats. Alternate formats usable by people with disabilities may include, but are not limited to, Braille, ASCII text, large print, recorded audio, and electronic formats that comply with this part.

Alternate methods. Different means of providing information, including product documentation, to people with disabilities. Alternate methods may include, but are not limited to, voice, fax, relay service, TTY, Internet posting, captioning, text-to-speech synthesis, and audio description.

Assistive technology. Any item, piece of equipment, or system, whether acquired commercially, modified, or customized, that is commonly used to increase, maintain, or improve functional capabilities of individuals with disabilities.

Electronic and information technology. Includes information technology and any equipment or interconnected system or subsystem of equipment, that is used in the creation, conversion, or duplication of data or information. The term electronic and information technology includes, but is not limited to, telecommunications products (such as telephones), information kiosks and transaction machines, World Wide Web sites, multimedia, and office equipment such as copiers and fax machines. The term does not include any equipment that contains embedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology.

Information technology. Any equipment or interconnected system or subsystem of equipment,

that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. The term information technology includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources.

Operable controls. A component of a product that requires physical contact for normal operation. Operable controls include, but are not limited to, mechanically operated controls, input and output trays, card slots, keyboards, or keypads.

Product. Electronic and information technology.

Self Contained, Closed Products. Products that generally have embedded software and are commonly designed in such a fashion that a user cannot easily attach or install assistive technology. These products include, but are not limited to, information kiosks and information transaction machines, copiers, printers, calculators, fax machines, and other similar types of products.

Telecommunications. The transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

TTY. An abbreviation for teletypewriter. Machinery or equipment that employs interactive text based communications through the transmission of coded signals across the telephone network. TTYs may include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. TTYs are also called text telephones.

Undue burden. Undue burden means significant difficulty or expense. In determining whether an action would result in an undue burden, an agency shall consider all agency resources available to the program or component for which the product is being developed, procured, maintained, or used.

Â§ 1194.5 Equivalent facilitation.

Nothing in this part is intended to prevent the use of designs or technologies as alternatives to those prescribed in this part provided they result in substantially equivalent or greater access to and use of a product for people with disabilities.

Subpart B -- Technical Standards

Â§ 1194.21 Software applications and operating systems.

(a) When software is designed to run on a system that has a keyboard, product functions shall be executable from a keyboard where the function itself or the result of performing a function can

be discerned textually.

- (b) Applications shall not disrupt or disable activated features of other products that are identified as accessibility features, where those features are developed and documented according to industry standards. Applications also shall not disrupt or disable activated features of any operating system that are identified as accessibility features where the application programming interface for those accessibility features has been documented by the manufacturer of the operating system and is available to the product developer.
- (c) A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that assistive technology can track focus and focus changes.
- (d) Sufficient information about a user interface element including the identity, operation and state of the element shall be available to assistive technology. When an image represents a program element, the information conveyed by the image must also be available in text.
- (e) When bitmap images are used to identify controls, status indicators, or other programmatic elements, the meaning assigned to those images shall be consistent throughout an application's performance.
- (f) Textual information shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input caret location, and text attributes.
- (g) Applications shall not override user selected contrast and color selections and other individual display attributes.
- (h) When animation is displayed, the information shall be displayable in at least one non-animated presentation mode at the option of the user.
- (i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
- (j) When a product permits a user to adjust color and contrast settings, a variety of color selections capable of producing a range of contrast levels shall be provided.
- (k) Software shall not use flashing or blinking text, objects, or other elements having a flash or blink frequency greater than 2 Hz and lower than 55 Hz.
- (l) When electronic forms are used, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

Â§ 1194.22 Web-based intranet and internet information and applications.

- (a) A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or

in element content).

- (b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
- (c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
- (d) Documents shall be organized so they are readable without requiring an associated style sheet.
- (e) Redundant text links shall be provided for each active region of a server-side image map.
- (f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.
- (g) Row and column headers shall be identified for data tables.
- (h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.
- (i) Frames shall be titled with text that facilitates frame identification and navigation.
- (j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
- (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
- (l) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.
- (m) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with Â§1194.21(a) through (l).
- (n) When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.
- (o) A method shall be provided that permits users to skip repetitive navigation links.
- (p) When a timed response is required, the user shall be alerted and given sufficient time to

indicate more time is required.

Note to Â§1194.22:

1. The Board interprets paragraphs (a) through (k) of this section as consistent with the following priority 1 Checkpoints of the Web Content Accessibility Guidelines 1.0 (WCAG 1.0) (May 5, 1999) published by the Web Accessibility Initiative of the World Wide Web Consortium:

Section 1194.22 Paragraph	WCAG 1.0 Checkpoint
(a)	1.1
(b)	1.4
(c)	2.1
(d)	6.1
(e)	1.2
(f)	9.1
(g)	5.1
(h)	5.2
(i)	12.1
(j)	7.1
(k)	11.4

2. Paragraphs (l), (m), (n), (o), and (p) of this section are different from WCAG 1.0. Web pages that conform to WCAG 1.0, level A (i.e., all priority 1 checkpoints) must also meet paragraphs (l), (m), (n), (o), and (p) of this section to comply with this section. WCAG 1.0 is available at <http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505>.

Â§ 1194.23 Telecommunications products.

- (a) Telecommunications products or systems which provide a function allowing voice communication and which do not themselves provide a TTY functionality shall provide a standard non-acoustic connection point for TTYs. Microphones shall be capable of being turned on and off to allow the user to intermix speech with TTY use.
- (b) Telecommunications products which include voice communication functionality shall support all commonly used cross-manufacturer non-proprietary standard TTY signal protocols.
- (c) Voice mail, auto-attendant, and interactive voice response telecommunications systems shall be usable by TTY users with their TTYs.

- (d) Voice mail, messaging, auto-attendant, and interactive voice response telecommunications systems that require a response from a user within a time interval, shall give an alert when the time interval is about to run out, and shall provide sufficient time for the user to indicate more time is required.
- (e) Where provided, caller identification and similar telecommunications functions shall also be available for users of TTYs, and for users who cannot see displays.
- (f) For transmitted voice signals, telecommunications products shall provide a gain adjustable up to a minimum of 20 dB. For incremental volume control, at least one intermediate step of 12 dB of gain shall be provided.
- (g) If the telecommunications product allows a user to adjust the receive volume, a function shall be provided to automatically reset the volume to the default level after every use.
- (h) Where a telecommunications product delivers output by an audio transducer which is normally held up to the ear, a means for effective magnetic wireless coupling to hearing technologies shall be provided.
- (i) Interference to hearing technologies (including hearing aids, cochlear implants, and assistive listening devices) shall be reduced to the lowest possible level that allows a user of hearing technologies to utilize the telecommunications product.
- (j) Products that transmit or conduct information or communication, shall pass through cross-manufacturer, non-proprietary, industry-standard codes, translation protocols, formats or other information necessary to provide the information or communication in a usable format. Technologies which use encoding, signal compression, format transformation, or similar techniques shall not remove information needed for access or shall restore it upon delivery.
- (k) Products which have mechanically operated controls or keys, shall comply with the following:
 - (1) Controls and keys shall be tactiley discernible without activating the controls or keys.
 - (2) Controls and keys shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls and keys shall be 5 lbs. (22.2 N) maximum.
 - (3) If key repeat is supported, the delay before repeat shall be adjustable to at least 2 seconds. Key repeat rate shall be adjustable to 2 seconds per character.
 - (4) The status of all locking or toggle controls or keys shall be visually discernible, and discernible either through touch or sound.

Â§ 1194.24 Video and multimedia products.

- (a) All analog television displays 13 inches and larger, and computer equipment that includes

analog television receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals. As soon as practicable, but not later than July 1, 2002, widescreen digital television (DTV) displays measuring at least 7.8 inches vertically, DTV sets with conventional displays measuring at least 13 inches vertically, and stand-alone DTV tuners, whether or not they are marketed with display screens, and computer equipment that includes DTV receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals.

- (b) Television tuners, including tuner cards for use in computers, shall be equipped with secondary audio program playback circuitry.
- (c) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.
- (d) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described.
- (e) Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent.

Â§ 1194.25 Self contained, closed products.

- (a) Self contained products shall be usable by people with disabilities without requiring an end-user to attach assistive technology to the product. Personal headsets for private listening are not assistive technology.
- (b) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.
- (c) Where a product utilizes touchscreens or contact-sensitive controls, an input method shall be provided that complies with Â§1194.23 (k) (1) through (4).
- (d) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.
- (e) When products provide auditory output, the audio signal shall be provided at a standard signal level through an industry standard connector that will allow for private listening. The product must provide the ability to interrupt, pause, and restart the audio at anytime.
- (f) When products deliver voice output in a public area, incremental volume control shall be provided with output amplification up to a level of at least 65 dB. Where the ambient noise level of the environment is above 45 dB, a volume gain of at least 20 dB above the ambient level shall

be user selectable. A function shall be provided to automatically reset the volume to the default level after every use.

(g) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.

(h) When a product permits a user to adjust color and contrast settings, a range of color selections capable of producing a variety of contrast levels shall be provided.

(i) Products shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.

(j) Products which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following:

(1) The position of any operable control shall be determined with respect to a vertical plane, which is 48 inches in length, centered on the operable control, and at the maximum protrusion of the product within the 48 inch length (see Figure 1 of this part).

(2) Where any operable control is 10 inches or less behind the reference plane, the height shall be 54 inches maximum and 15 inches minimum above the floor.

(3) Where any operable control is more than 10 inches and not more than 24 inches behind the reference plane, the height shall be 46 inches maximum and 15 inches minimum above the floor.

(4) Operable controls shall not be more than 24 inches behind the reference plane (see Figure 2 of this part).

Â§ 1194.26 Desktop and portable computers.

(a) All mechanically operated controls and keys shall comply with Â§1194.23 (k) (1) through (4).

(b) If a product utilizes touchscreens or touch-operated controls, an input method shall be provided that complies with Â§1194.23 (k) (1) through (4).

(c) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.

(d) Where provided, at least one of each type of expansion slots, ports and connectors shall comply with publicly available industry standards.

Subpart C -- Functional Performance Criteria Â§ 1194.31 Functional performance criteria.

- (a) At least one mode of operation and information retrieval that does not require user vision shall be provided, or support for assistive technology used by people who are blind or visually impaired shall be provided.
- (b) At least one mode of operation and information retrieval that does not require visual acuity greater than 20/70 shall be provided in audio and enlarged print output working together or independently, or support for assistive technology used by people who are visually impaired shall be provided.
- (c) At least one mode of operation and information retrieval that does not require user hearing shall be provided, or support for assistive technology used by people who are deaf or hard of hearing shall be provided.
- (d) Where audio information is important for the use of a product, at least one mode of operation and information retrieval shall be provided in an enhanced auditory fashion, or support for assistive hearing devices shall be provided.
- (e) At least one mode of operation and information retrieval that does not require user speech shall be provided, or support for assistive technology used by people with disabilities shall be provided.
- (f) At least one mode of operation and information retrieval that does not require fine motor control or simultaneous actions and that is operable with limited reach and strength shall be provided.

Subpart D -- Information, Documentation, and Support
Â§ 1194.41 Information, documentation, and support.

- (a) Product support documentation provided to end-users shall be made available in alternate formats upon request, at no additional charge.
- (b) End-users shall have access to a description of the accessibility and compatibility features of products in alternate formats or alternate methods upon request, at no additional charge.
- (c) Support services for products shall accommodate the communication needs of end-users with disabilities.

Figures to Part 1194

Figure 1

Vertical Plane Relative to Operative Control

Figure 2 Height of Operative Control Relative to a Vertical Plane

1. Section 508 does not apply to national security systems, as that term is defined in section 5142 of the Clinger-Cohen Act of 1996 (40 U.S.C. 1452).
2. The Access Board is an independent Federal agency established by section 502 of the Rehabilitation Act (29 U.S.C. 792) whose primary mission is to promote accessibility for individuals with disabilities. The Access Board consists of 25 members. Thirteen are appointed by the President from among the public, a majority of who are required to be individuals with disabilities. The other twelve are heads of the following Federal agencies or their designees whose positions are Executive Level IV or above: The departments of Health and Human Services, Education, Transportation, Housing and Urban Development, Labor, Interior, Defense, Justice, Veterans Affairs, and Commerce; the General Services Administration; and the United States Postal Service.
3. Whenever the Access Board revises its standards, the Federal Acquisition Regulatory Council is required to revise the FAR, and each appropriate Federal agency is required to revise its procurement policies and directives within six months to incorporate the revisions.
4. 48 CFR Chapter 1, part 2, Â§2.101 Definitions Information Technology (c).